

12th Séminaire ACN, June 2008, Session 5 (Friday June 6 morning)

Session 5 : Macro-economic Modeling and National Accounts

Statistical treatment of national account data and economic analysis

Stéphane Gregoir (EDHEC, France)

National accounts, by measuring macro-economic aggregates through harmonized concepts, aim at describing the economic situation of a country in a way that permits comparisons both through time and across countries. The joint observation of a set of variables allows the economists to produce interpretations in terms of economic mechanisms at work, with consequences regarding future changes or actions to be taken in order to reduce some currently observed disequilibrium. The use of structural macro-econometric models, estimated on such data, strengthens such interpretations.

Quarterly national accounts data are generally being used for short term economic analysis. However, reading infra-annual data is not always easy particularly regarding the timing of changes in related variables, for at least two reasons. On the one hand, conventional rules applied to compile data (time of recording rules) introduce in the data some part of presupposed economic rationality, which is affecting the interpretation to be given to structural equations in terms of agents' behaviors. On the other hand, usual statistical methods for seasonal and calendar adjustments, by treating time series one by one, may introduce some distortion on the relations between variables. These two dimensions can sometimes interact, for example when the rationality dimension is related to the expectation of the yearly distribution of a foreseeable part of income (like a bonus distributed once a year).

Working directly on non adjusted data, and on data recorded on cash basis rather than on accrual basis may in theory allow the economists to describe and to model agents' decisions in a more accurate manner, closer to reality. However, non adjusted data may not always be representative of underlying economic phenomena : in some cases, the sampling technique itself may induce seasonal regularities disconnected from economic reality (e.g. household consumption variations due to population movements during holidays), or on the contrary may erase some real economic seasonal regularities (e.g. intermediary consumption of energy of a given industry, measured through the hypothesis that the intermediary consumption/output ratio remains stable on an infra-annual basis). Therefore, the interpretation of econometric equations estimated on such data can remain fragile.

In the end, economic analysis always relies on data that are subject to conventions and that are affected by the technique through which they are elaborated. This is why the use of adjusted - hence easily readable - data is generally preferred. In order to be informative, homogeneous treatments must be maintained through time, so that underlying modifications may be detected, hence allowing for economic analysis. However, potential distortion between variables induced by specific statistical treatments can significantly affect the quality and the relevance of some analysis. Even when the treatment is stable through time, distortions may appear, inducing some loss in the simultaneity or in the chronology of economic events, which then can produce misleading interpretations. After a theoretical review of all these questions, the paper provides some illustration on a practical case, where temporal relations between economic variables are substantially different whether they are considered on a seasonally adjusted or non seasonally adjusted basis.